CLAIMS

What is claimed is

1. A transgenic non-human mammalian animal having integrated within its genome a transgene encoding an exogenous wild-type α_{1A}, α_{1B}, or α_{1D} adrenergic receptor or a transgene encoding a constitutively-active mutant α_{1A},α_{1B}, or α_{1D} adrenergic receptor, wherein the transgene is operably linked to a promoter that drives expression of the transgene in cells innervated by the sympathetic nervous system, and wherein the transgenic animal exhibits an abnormal phenotype.

2. The transgenic animal of claim 1 wherein the transgene encodes an exogenous wild-type α_{1B} adrenergic receptor or a constitutively active mutant α_{1B} adrenergic receptor.

3. The transgenic animal of claim 1 wherein the animal is a mouse and exhibits a neurodegenerative disorder-type phenotype.

4. The transgenic animal of claim 1 wherein the animal is a mouse and exhibits a phenotype resembling a cardiovascular disease.

5. The transgenic animal of claim 1 wherein the promoter is the promoter of the animal's endogenous α_{1B} adrenergic receptor.

6. The transgenic animals of claim 1 wherein the transgene encodes a constitutively active mutant hamster, rat, or human α_{1B} adrenergic receptor..

7. The transgenic animal of claim 1 wherein expression of the transgene results in the animal exhibiting Parkinson's disorder type symptoms..

8. The transgenic of animal of claim 1 wherein the transgene encoding a signal peptide.

9. A method of screening for a compound which modulates function of α_{1B} adrenergic receptor comprising:

administering the compound to the transgenic animal of claim 1; and

assaying for changes in the abnormal phenotype of said animal.

10. The method of claim 9 wherein the animal exhibits neurodegenerative symptoms and wherein the assay involves assaying for an improvement in or a delay in progression of the symptoms.

11. The method of claim 9 wherein the animal exhibits symptoms of a cardiovascular disorder and wherein the assay involves assaying for an improvement in or delay in progression of the symptoms.

12. The method of claim 9 wherein the assay involves evaluating the locomotor activity of the animal.

13. The method of claim 9 wherein the animal exhibits seizure type symptoms and wherein said assay involves evaluating the effect of the compound on the frequency, severity, or duration of said seizures.

14. A method of screening a drug for activity against a neurodegenerative disorder or a cardiovascular disorder, comprising

administering the drug to a transgenic mouse whose somatic cells comprise a transgene encoding an exogenous wild-type α_{1B} adrenergic receptor or a transgene encoding a constitutively-active mutant α_{1B} adrenergic receptor, wherein the transgene is operably linked to a promoter that drives expression of the transgene in cells innervated by the sympathetic nervous system, and wherein the transgenic animal exhibits symptoms characteristic of a disorder selected from the group consisting of a neurodegenerative disorder, a cardiovascular disorder, and a combination of a neurodegenerative and a cardiovascular disorder ; and

monitoring the mouse for the effects of said drug on said symptoms.

15. The method of claim 14 wherein the transgenic mouse overexpresses an exogenous α_{1B} adrenergic receptor on the surface of cells in the brain of said animal.

16. The method of claim 14 wherein the transgenic mouse expresses a constitutively active mutant α_{1B} adrenergic receptor on the surface of cells in the brain of said animal.

17. A method for treating a subject with a neurodegenerative disorder, comprising:

administering to said subject a biologically effective amount of a compound capable of blocking activation of α_1 adrenergic receptors

18. The method of claim 17 wherein said compound is an α_{1B} adrenergic receptor antagonist.

19. The method of claim 17 wherein said subject has exhibited symptoms characteristic of Parkinson's disease.

20. The method of claim 17 wherein the subject has exhibited seizures.

21. The method of claim 17 wherein the subject has exhibited locomoter impairment.